

H/007/60/02-3/014/022
D0018/D3001

Some Aspects of Using Quench Gaps for the Protection of Overhead
Transmission Lines and Equipment

immediate vicinity of the transformer. There are
4 figures, 1 graph and 8 references, of which 3 are
Hungarian, 3 German and 2 English.



Card 2/2

H/007/61/000/012/001/002
D286/D303

AUTHORS: Besze, Jeno, Scientific Associate and Karády, Gyorgy, Doctor, Candidate of Technical Sciences

TITLE: Protecting distances of overvoltage arresters and arc arresting tubes

PERIODICAL: Elektrotechnika, no. 12, 1961, 532-549

TEXT: The authors discuss the protecting distances of over-voltage protection devices used for the transformer in a power station. First the surge voltage is assumed to be a linear function of time, and also the method using exponential time functions is discussed. In the authors' opinion to derive the latter is cumbersome, but the results obtained are more general and can be handled more easily. The results obtained may be thus summarized: In the case of both overvoltage arresters and arc arresting tubes the potential at the terminals of the



Card 1 /5

Protecting distances of ...

H/007/61/000/012/001/002
D286/D303

protected transformer increases at about double steepness until, due to the arrester or arresting tube, the neutralizing wave returns. After that, as a result of reflections between the transformer and the protection device, ringing occurs. The maximum potential at the terminals of the transformer is the first voltage peak. To determine the protecting distance this maximum potential is taken into account. The phenomena of ringing is also investigated. If the leading edge of the surge is assumed to be a linear function of time the protecting distance in the most practical case is given by equation (18)

$$X_v = \frac{U_v - U_{sz}}{2\Delta} c, \text{ where } X_v - \text{distance from transformer, } U_v -$$

maximum allowable potential across the protected insulation,
 U_{sz} = operating voltage of the spark gap, Δ - steepness of
surge, c - velocity of light. Assuming an exponential leading

Card 2/5

Protecting distances of ...

H/007/61/000/012/001/002
D286/D303

edge the protecting distance is given by equation (29),

$$L = \frac{c}{2\alpha} \ln \frac{2 \left(\frac{U_o}{U_{sz}} \right) + \left(\frac{U_{tr}}{U_{sz}} \right) - 2}{2 \left(\frac{U_o}{U_{sz}} \right) - \left(\frac{U_{tr}}{U_{sz}} \right)}, \text{ where } L = \text{the distance between protection device and transformer, } \alpha = \text{a constant depending on the leading edge,}$$

U_o = peak voltage of the surge, U_{tr} = potential appearing at the terminals of the transformer. Hence the protecting distance in the main depends upon the steepness of the incident surge, the operating potential of the protecting device, and upon the maximum allowable potential at the transformer terminals. By choosing the right position of the protection device, the protection can be extended to other devices in the station. The

Card 3/5

Protecting distance of ...

H/007/61/000/012/001/002
D286/D303

results obtained are compared with measurements made on a model. The measured values agree with the calculated ones. The equations derived apply to the protecting distances of both the overvoltage arresters and arc arresting tubes or spark gaps. There are 23 figures and 18 references: 2 Soviet-bloc and 16 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: J.K. Dillard, T.J. Bliss, Surge Protection of transformers based on new lightning arrester characteristics. AIEE Transactions 69, III, B.r. 1954, Oct. pp. 1305-11; E. Beck, Lightning Protection of Electric Systems. New York. McGraw-Hill 1954; AIEE Committee Report: Performance characteristics of lightning protective devices. Transactions AIEE 72 (1953) III.r. pp. 427-432; G.B. Harper: The Selection of Insulation Levels and Test for high Voltage Transformers. Proc. Of IEE (1959) Dec. A.r. no. 30 p. 429.



Card 4/5

Protecting distances of ...

H/007/61/000/012/001/002
D286/D303

ASSOCIATION: Villamos energetikai kutató intézet (Research
Laboratory for Electrical Energetics)

SUBMITTED: May 1961

Card 5/5

BESZE, Jeno, tudományos munkatárs

Some aspects of applying quenching tubes for protecting
transmission lines and electric apparatus. Elektrotechnika
53 no.2/3:95-98 '60.

BESZNYAK, Istvan, Dr.

Tumor of the carotid body (chemodectoma). Orv. hetil. 98 no.41:
1131-1135 13 Oct 57.

1. A Budapesti Orvostudományi Egyetem I. sz. Kórbírói és
Kísérleti Rákkutató Intézete (igazgató: Baló József dr. egyet. tanár)
közleménye.

(PARAGANGLIOMA

non-chromaffin (Hun))

BESZNYAK, Istvan, Dr.

On gastro-enterogenic cysts of the thoracic cavity. Gyermekgyógy-
aszat 10 no.9:275-281 Sept 1959

1. A Budapesti Orvostudományi Egyetem I. Kóronctani és Kísérleti
Rákkutató Intézete (Igazgató: Dr Baló József egyetemi tanár)
közleménye.

(CYSTS)

(GASTROINTESTINAL DISEASES, compl.)

(THORAX, dis.)

EXCERPTA MEDICA Sec 5 Vol 13/5 Gen. Path. May 60

1611. GLOMUS CAROTICUM TUMOUR (CHEMODECTOMA) - Karotisknötchen-tumor (Chemodektom) - Besznyák I. and Pintér E. I. Inst. für Pathol. Anat. und Exp. Krebsforsch. und Chir. Klin., Med. Univ., Budapest - ZBL. ALLG. PATH. PATH. ANAT. 1959, 99/9-11 (575-582) illus. 7
A report is given of 3 cases. The biggest of these tumours was the size of a hen's egg. Histologically, there were one alveolar and 2 mixed forms. Two patients showed clinical symptoms. One, a woman aged 67 yr. old, suffered from vertigo and headaches, pains in the ear and the temporal area on the side of the tumour. She was cured by extirpation of the tumour. A man aged 61 yr. presented bradycardia and a tendency to collapse. Autopsy revealed a glomus tumour the size of a hen's egg. The oldest patient was a woman aged 89 yr.; here, the tumour was found unexpectedly during post-mortem examination. In none of these cases could metastases or histological signs of malignancy be observed. Gdthert - Erfurt (V. 16)

BESZNYAK, Istvan, dr.

Pathological study of the cause of death in heart surgery.
Orv.hetil. 100 no.43:1547-1551 0 '59.

1. A Budapesti Orvostudományi Egyetem I. Kórbáncstani és
Kísérleti Rákkutató Intézete (igazgató: Baló József dr.
egyetemi tanár) közleménye.

(HEART SURGERY compl.)
(DEATH)

BALO, Jozsef, dr.; KENDREY, Gabor, dr.; JUHASZ, Jeno, dr.; BESZNYAK, Istvan, dr.

Experimental studies on the tumor growth-inhibiting effect of
DBM (R13) (1,6-bis(2-bromoethylamino)-1,6-desoxy-D-mannitol
dihydrobromide) . Orv.hetil. 101 no.5:157-161 Ja '60.

1. Budapesti Orvostudományi Egyetem, I.Korbonctani és Kísérleti
Rakutató Intézet.

(NITROGEN MUSTARDS pharmacol.)

(MANNITOL rel. cpds.)

LOBLOVICS, Ivan, dr.; PAPP, Sandor, dr.; BESZNYAK, Istvan, dr.

Determination of pH during the course of intratracheal anesthesia.
Magy. sebeszet 14 no.6:390-394 D '61.

1. A Budapesti Orvostudományi Egyetem IV sz. Sebészeti Klinikájának közleménye.

(ANESTHESIA INTRATRACHEAL)
(HYDROGEN ION CONCENTRATION)

BESZNYAK, Istvan, dr.; BOCS, Gabor, dr.

Patho-anatomical studies on the increase of leukemic diseases in Hungary. Orv. hetil. 102 no.25:1175-1176 18 Jé '61.

1. Budapesti Orvostudományi Egyetem, I Kórházi és Kísérleti Rákkutató Intézet.

(LEUKEMIA statist)

BESZNYAK, I.; BOCS, G.

Patho-anatomical observations on the distribution of leukemic diseases in Hungary. Acta med. Acad. Sci. Hung. 18 no.1:1-7 '62.

(LEUKEMIA statist)

KUDASZ, Jozsef, dr.; BESZNYAK, Istvan, dr.

Cardiac changes secondary to resuscitation and their clinical significance. Orv. hetil. 103 no.6:248-252 11F '62.

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika.
(RESUSCITATION) (HEART pathol)

LOBLOVICS, Ivan, dr.; BESZNYAK, Istvan, dr.

Perforating regional ileitis. Orv. hetil. 103 no.31: 1461-1463 5 Ag
'62.

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika.
(ILEITIS REGIONAL compl)

171

HUNGARY

KUDASZ, Jozsef, Dr., BESZNYAK, Istvan, Dr.: Medical University of Budapest, Fourth Surgical Clinic, Department of Heart and Vascular Surgery (Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika, Szív- és Érssebészeti Osztály).

"Experiences and Results in the Course of 64 Clinical Resuscitations."

Budapest, Orvosi Hetilap, Vol 103, No 48, 2 Dec 62, pages 2270-2272.

Abstract: [Authors' summary] The authors report their experiences in 64 cases of clinical resuscitation. They discuss the precipitating factors of heart stoppage and classify death in three types. 27 cases were suitable for a resuscitation attempt. A definitive state of death was present in 17 cases in which resuscitation was considered the last refuge only. Of the 47 resuscitations, 49 percent showed final success. During the last four years the rate of successful resuscitations increased to 72 percent.
[Of 34 references about half are Western, the rest Soviet-bloc]

BESZNYAK, Istvan, dr.

Changes in the chordae tendineae and papillary muscles in mitral stenosis and their surgical significance. Orv. hetil. 103 no.44: 2067-2073 4 N '62.

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika.
(MITRAL STENOSIS) (PAPILLARY MUSCLES) (HEART SURGERY)

KUDASZ, József, dr.; BESZNYAK, István dr.

Experiences and results with 64 clinical resuscitations. Orv. hetil.
103 no.48:2270-2272 2 D '62.

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika, Szív-
és Ersebeszeti Osztály.

(RESUSCITATION)

HUNGARY

PINTER, Endre, Dr, BESZNYAK, Istvan, Dr, ARMENTANO, Lajos (Mrs), Dr; Medical University of Budapest, IV. Surgical Clinic, Cardiac and Vascular Surgery (Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika, Szív- és Érsebészet).

"Antibiogram and Local Antibiotic Treatment of Empyema of the Chest."

Budapest, Orvosi Hetilap, Vol 104, No 36, 8 Sept 1963, pages 1696-1699.

Abstract: [Authors' Hungarian summary modified] Results of the treatment of 55 patients with empyema of the chest is reported by the authors. The causative factors included Staphylococcus aureus, Streptococcus and Pyocyanus, in the order of frequency. The sensitivity of the bacteria was greatest toward neomycin and erythromycin. Penicillin, streptomycin and the sulfonamides have been ineffective in most of the cases. The importance of an accurate antibiogram and of directed antibiotic treatment is stressed. Empyemas following partial resection of the lungs have been successfully treated by local application of antibiotics, in 80 per cent of the cases. Infections which followed pneumonectomies could not be cured by conservative treatment. In these cases, the antibiotic treatment created a more favorable condition for thoracoplasty. 19 Hungarian, 17 Western references.

VAS, Gyorgy, dr.; PAPP, Sandor, dr.; HESZNYAK, Istvan, dr.; SZABO, Imre, dr.
FRANK, Jozsef, dr.

Isolation perfusion of limbs with hyperoxygenated blood in
chronic peripheral arterial diseases. Preliminary report.
Orv. hetil. 105 no.12:556 22 Mr'64

1. Budapesti Orvostudományi Egyetem, IV Sebészeti Klinika,
Szív- és Erősebeszet (igazgato: Kudasz, Jozsef, dr.)

*

BESZNYAK, Istvan, dr.

Regional isolation perfusion and its role in the treatment of tumors. Orv. hetil. 106 no.18:821-827 2 My '65

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika, Szív- és Ersebeszet (igazgató: Kudasz, József, dr.).

HUSVETI, Sandor, dr.; BESZNYAK, Istvan, dr.

Experimental regional isolation perfusion with Degranol. Orv.
hetil. 106 no.18:827-829 2 My '65

1. Budapesti Orvostudományi Egyetem, IV. Sebészeti Klinika,
Szív- és Ersebeszet (igazgató: Kudas, József, dr.)

BESZUBEZ, M. K.

"Some Considerations Concerning the R. Herz Reaction." (p. 685)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 4

BET', K.M.

Belt conveyer for use in mines. Gor. zhur. no.8:34 Ag '58.
(Conveying machinery--Patents) (MIRA 11:9)

BET, YE. I.

Seeds - Disinfection

Planting of oak trees with acorns treated with the preparation AB and by "granozan." Les.
khoz. 5 no. 4, 952.

(us)

9. Monthly List of Russian Accessions, Library of Congress, August 1957, Uncl.
52

BETAK, Jindrich, inz.

Definition of mensuration. Slaboproudy obzor 23 no.9:538 S '62.

Detak, E.

The production of large-sized bricks and brick blocks. p. 104

(Stavivo. Vol. 35, no. 3, Mar. 1957. Praha, Czechoslovakia)

OS: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

BETAK, M.

CZECHOSLOVAKIA / Chemical Technology. Chemical Products H
and Their Application. Ceramics. Glass. Binding
Materials. Concretes.

Abs Jour: Ref Zhur-Khimiya, No 19, 1958, 65130

Author : Betak M

Inst : -

Title : New Trends in the Construction of Dies for Brick
Presses

Orig Pub: Stavivo, 1958, 36, No 3, 100-101

Abstract: No abstract.

Card 1/1

BETAK, M., inz.; MUSIAL, J.

Development of two-layer panels at the Prazske cihelny
National Enterprise. Stavivo 41 no.10:356-358 0 '63.

BETAK, V.

"Selecting engines for servomechanisms." p. 425.

STROJIRENSTVI. (MINISTERSTVO TEZKEHO STROJIRENSTVI, MINISTERSTVO PRESNEHO STROJIRENSTVI A MINISTERSTVO AUTOMOBILOVEHO PRUMYSLU A ZEMEDELSKYCH STROJU.)
Praha, Czechoslovakia, Vol. 9, no. 6, June 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.
Uncl.

FISCHER, Rene; BETA KOVA, Drahomira

Effect of various types of rest on dynamometric and ergographic performance. Pracovni lek. 11 no.4:183-187 May 59.

1. Ustav hygieny prace a chorob z povolani v Praze, oddeleni fyziologie vyssi nervove cinnosti. R.F., D.B., Praha 2, Ks Karlovu 4.

(MUSCLES, physiol.

ergography & dynamometry, eff. of rest (Cz))

(REST, eff.

on ergography & dynamometry (Cz))

BETALINA, M.A.

2.1.8) **PHASE I BOOK EXPLANATION** 807/3247

Moscow. Inzhenerno-fizicheskiy institut

Sakhozrye voprosy eksperimental'noy fiziki, vyp. 1 (Some Problems in Experimental Physics, Nr 1) Moscow, 1959. 85 p. 5,000 copies printed.

Sponsoring Agency: Ministerstvo vysshago i srednego spetsial'nogo obrazovaniya RSFR.

Ed.: V.F. Semenov, Candidate of Physical and Mathematical Sciences, Docent; **Tech. Ed.:** R.A. Legrasovskaya.

PURPOSE: This book is intended for physicists, chemists and other persons interested in general problems of nuclear physics and physical and chemical analyses.

CONTENT: The collection contains 10 articles dealing with problems in elementary particle acceleration, radiography and crystal structure, physical and chemical analysis and instrumentation in these fields. References and mention of persons who accompany each article.

Kirillov-Ustyuzov, V.I. and Yu.M. Ivanov. Neutron Beams With Energies up to 70 MeV Produced on an Accelerator 3

Burakov, Y.D. Determination of Surface Temperature by the Method of Quasi-Brillouin Scattering 15

Kalashnikov, A.A. and B.M. Stepanov. Activation of Weak Mixtures in Press Form 22

Artamonova, L.Ye., M.A. Betalina and B.M. Stepanov. Influence of the Velocity Distribution of Electrons on the Resolving Time of an Electron Multiplier 27

Zhukovskiy, B.M., Ye. D. Protchenko and V.F. Semenov. A Radio Spectrometer With High-Frequency Modulation of the Magnetic Field for Observing Electron Paramagnetic Resonance 57

Semenov, V.F. and V.K. Kabanov. The Signal-to-Noise Ratio of the Input Device of a Radio Spectrometer 65

Alshabakov, O.M., V.M. Zhukovskiy, Ye. D. Protchenko and V.F. Semenov. A Magnetic Field Intensity Regulator 53

Trokhov, Ye.S. The Splitting Strength of Mica Along the Cleavage Plane in Air 69

Kolymashin, A.A. The Spectrum of Radicals in a Heterogeneous Discharge in the Presence of Vapors of Alcohols of the Aliphatic Series, Acetone and Diethyl Ether 67

Yorob'yev, M.A. The Double Refraction of Crystals of the Aliphatic Series 76

AVAILABLE: Library of Congress

W/esp
3-21-68

Card 3/3

BETALOV, A.I.

Washing and drying unit for porcelain articles. Stek.i ker.
19 no.5:31-32 My '62. (MIRA 15:5)

(Porcelain)

VADACHKORIYA, V.I., inzh.; BOKUCHAVA, knad. tekhn. nauk, retsenzent;
BETANELI, A., kand. tekhn. nauk, dotsent, red.; KATSITADZE, A.,
tekhn. red.

[Investigating the machinability of plastics with cutting tools]
Issledovanie obrabatyvaemosti plastmass rezaniem. Tbilisi, Izd-
vo Gruzinskogo politekhn. in-ta im. V.I.Lenina, 1960. 88 p.
(MIRA 14:5)

(Plastics--Testing)

5

B

DEPENDENCE OF APPLIED FORCE ON RATE OF HIGH-SPEED CUTTING OF METALS. (In Russian.) T. N. Lopadze and A. I. Betangli. *Stanki i Instrument* (Machine Tools and Equipment), v. 21, May 1950, p. 16.

DEPENDENCE OF CUTTING FORCE ON CUTTING RATE AND ON LEAD ANGLE OF CUTTING TOOL WAS INVESTIGATED. INFLUENCE OF CUTTING RATE IS EXPLAINED ON THE BASIS OF ITS TEMPERATURE EFFECT ON CUTTING AND ON RATE OF DEFORMATION. DATA ARE CHARTED.

ASST. SEC. 1 METALLURGICAL LITERATURE CLASSIFICATION

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 80

BETANELI, A.I., inzhener.

Hardness of hard alloys and of mineral-ceramic materials in a hot state.
Vest.mash. 33 no.4:49-52 Ap '53. (MLBA 6:5)

1. Gruzinskiy ordena Trudovogo Krasnogo znameni politekhnicheskoy institut
imeni S. M. Kirova. (Steel alloys) (Ceramics)

BETANELI, A. I.

USSR/ Engineering - Cutting tools

Card 1/1 ; Pub. 128 - 14/31

Authors ; Betaneli, A. I.

Title ; Determining the durability relationships as to the hardness of hard alloys and steels during their high-speed cutting in the hot state

Periodical ; Vest. mash. 10, 62 - 64, Oct 54

Abstract ; Methods for determining the durability of cutting tools, during high-speed cutting of hard alloys and steels in the hot state, are presented. Four USSR references (1948 - 1953). Graphs.

Institution ;

Submitted ;

BETANELI, A.I.

Temperature dependence of steel hardness. Fiz.met.i metalloved. 3
no.3:540-546 '56. (MLRA 10:3)

1. Tbilisskiy institut inzhenerov zheleznodorozhnogo transporta.
(Metals, Effect of temperature on)
(Steel, Structural Testing)

25(1); 18(7)

PHASE I BOOK EXPLOITATION

SOV/1928

Betaneli, Archil Iosifovich

Tverdost' staley i tverdykh splavov pri povyshennykh temperaturakh
(Hardness of Steel and Hard Alloys at High Temperatures) Moscow,
Mashgiz, 1958. 94 p. 5,500 copies printed.

Reviewers: M.G. Lozinskiy, Doctor of Technical Sciences, and
M.N. Larin, Doctor of Technical Sciences, Professor; Ed.: T.N. Lo-
ladze, Candidate of Technical Sciences, Docent; Tech. Ed.: V.D. El'-
kind; Managing Ed. for Literature on Metalworking and Tool Making:
R.D. Beyzel'man, Engineer.

PURPOSE: This book is intended for engineers and research workers in
the field of metal physics, metallurgy, and the theory of metal
cutting.

COVERAGE: The book contains the results of experiments dealing with
the relationship between the temperature and hardness of structural
steel, tool steel, high speed steels, and carbides. In the study of

Card 1/4

Hardness of Steel and Hard Alloys (Cont.)

SOV/1928

the effect of composition and other factors on the relationship between resistance to deformation and the rate of deformation and temperature, one may use the hardness values of metal measured at varying initial rates of penetration of the point at various temperatures. In the course of these experiments a relationship was established between hardness and ultimate strength and other mechanical properties of metals at elevated temperatures. Experiments show that the method of testing for long-time hardness of metals and alloys does not fully replace tests for fatigue strength and creep. They do, however, provide valuable data for studying the composition, microstructure, and other properties of metals and alloys. The text contains graphs showing the interdependence of hardness and temperature of various metals and alloys. No personalities are mentioned. There are 75 references, 73 of which are Soviet and 2 English.

Foreword

3

Ch. I. Survey of the Basic Hardness Testing Methods for Metals and Alloys at Elevated Temperatures

1. Hardness testing method without the use of a point 5
2. Dynamic hardness testing methods with the use of a point 6

8

Card 2/4

Hardness of Steel and Hard Alloys (Cont.)

SOV/1928

| | |
|---|----|
| 3. Static hardness testing methods with the use of a point | 11 |
| Ch. II. Methods of Determining the Hardness of Steel and Hard Alloys at Elevated Temperatures | 26 |
| 4. Description of the arrangement for testing the hardness of steel and hard alloys at elevated temperatures | 26 |
| 5. Oxidation of test samples during heating; antioxidation measures | 32 |
| 6. Measuring the temperature of the test specimen | 34 |
| 7. Material and shape of the point | 35 |
| 8. Selection of the load | 38 |
| 9. Determination of the degree of hardness | 39 |
| 10. Correcting the degree of hardness in testing with a hard alloy point heated to a lower temperature than the test specimen | 42 |
| 11. Selection of the duration of load application | 45 |
| 12. Duration of holding the metal at heat and its effect on the degree of hardness | 48 |
| 13. The process of testing | 50 |
| 14. The accuracy of determining the relationship of temperature and the hardness of steel and hard alloys | 51 |
| Card 3/4 | |

Hardness of Steel and Hard Alloys (Cont.)

SOV/1928

| | |
|--|----|
| Ch. III. Relationship Between Temperature and Hardness of Steels | |
| 15. Relationship between the temperature and hardness of structural steels | 57 |
| 16. Relationship between temperature and hardness of tool and high-speed steels | 57 |
| 17. Formula for the relationship between temperature and hardness of steels | 65 |
| | 68 |
| Ch. IV. Relationship Between Temperature and Hardness of Sintered Carbides | |
| 18. Brief review of data pertaining to the hardness of carbides at elevated temperatures | 73 |
| 19. Relationship between the temperature and hardness of sintered carbides | 73 |
| | 77 |
| Bibliography | 90 |

AVAILABLE: Library of Congress (TA473.B44)

Card 4/4

GO/ad
7-20-59

BETANELI, A.

Dependence of the hardness of sintered carbides on temperature.
p. 410

MECHANIK Warszawa, Poland Vol. 32, no. 8, Aug. 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 2,
Feb. 1960
Uncl.

BETANELI, A.I., kand.tekhn.nauk, dotsent

investigating the strength of the cutting part of a metal-
cutting tool. Vest.mashinostr. 44 no. 2:50-54 F '64.

(MIRA 17:7)

BETANELI, A.I., kand.tekhn.nauk dotsent

Generalized calculation of the strength of a cutting-tool edge.
Vest mashinostr. 45 no.2:76-80 F 165.

(MIRA 18:4)

ACCESSION NR: AP4015109

S/0122/64/000/002/0050/0054

AUTHOR: Betanali, A. I. (Candidate of technical sciences, Docent)

TITLE: Investigation of tool-bit durability (Reports at the MVTU im. Bauman on 10May63 and at VNII on 13May63)

SOURCE: Vestnik mashinostroyeniya, no. 2, 1964, 50-54

TOPIC TAGS: toughness, tool bit, cutting edge, material property, loading, crumbling, plastic deformation, refractory material, continuous cutting, intermittent stress, temperature distribution, steel, alloy

ABSTRACT: Durability of cutting tools operating at low cutting speeds has been investigated. The effects of temperature and of the residual stresses have been neglected. Normal stresses caused by a uniform cutting load on the front and rear edges of a bit are analyzed. Figure 1 of the Enclosure shows the distribution of radial stresses σ_r in a bit with a positive rake at $P_1 < P_2$ (P is the cutting force). Polar coordinates of a point are designated by r and θ ; OY' is the symmetry axis of the cutter. Components of stresses are determined (in rectangular coordinates) by formulas

Card 1A 3

ACCESSION NR: AP4015109

$$\left. \begin{aligned} \sigma_r &= \sigma_c \cos^2 \left[\theta - \left(\frac{\beta}{2} + \gamma \right) \right]; \\ \sigma_\theta &= \sigma_c \sin^2 \left[\theta - \left(\frac{\beta}{2} + \gamma \right) \right]; \\ \tau_{r\theta} &= \frac{1}{2} \sigma_c \sin 2 \left[\theta - \left(\frac{\beta}{2} + \gamma \right) \right]. \end{aligned} \right\}$$

Models of tool bits were made of epoxy ED-6 and of organic glass. Experimental results obtained with these models agreed well with the theoretical results. In order to design cutting instruments, safe cross section must also be determined. It should be noted that in this work the "dangerous" points lie above the neutral axis and about the cutting edge. Formulas

$$\left. \begin{aligned} \sigma_r &= - \frac{2P \cos \theta}{\pi c_0 r^2}; \\ \sigma_\theta &= 0; \\ \tau_{r\theta} &= 0. \end{aligned} \right\}$$

are used to determine the distribution of stresses in the vicinity of rounded

Card 2/43

ACCESSION NR: AP4015109

edges. The article also presents a solution for calculations of the total length of contact between the bit and the cut metal. All the calculations presented here proved to be correct in experiments involving cutting speed of 1 m/min and a chip thickness of 4 mm on the heat-resistant alloys KhN77TYuR (EI437B), KhN70VTVuB (EI598), and KhN70VMTYu (EI617) cut bits fitted with cutting plates made of VK8, T5K10, T15K6, T5K12V, and the mineral-ceramic TsM332; the latter showed almost total unsuitability for cutting of heat-resistant alloys. Some of the experiments were conducted under carbon tetrachloride. Orig. Art. Has: 5 diagrams and 15 formulas.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Mar64

ENCL: 01

SUB CODE: IE, MD

NO REF SOV: 007

OTHER: 002

Card 3/3

BETANELI, A.M., kandidat meditsinskikh nauk

Technic of suture in liver and kidney surgery. Khirurgiia no.7:
81-82 J1 '54. (MLRA 7:10)

1. Iz khirurgicheskogo otdeleniya (sav. N.G.Polumordvinov)
Kutaiskoy gorodskoy bol'nitsy (glavnyy vrach A.S.Dzotsenidze)
(LIVER, surgery,
suture, technic)
(KIDNEYS, surgery,
suture, technic)

BETANELI, A.M.

Gastric resection for treating ulcers in a patient with left transposition of the colon. Khirurgiia Supplement:32 '57.
(MIRA 11:4)

1. Iz khirurgicheskogo otdeleniya II Kutaiskoy gorodskoy bol'nitsy.

(STOMACH--SURGERY) (PEPTIC ULCER)

(COLON--ABNOIMITIES AND DEFORMITIES)

BETANELI, A.M., kand. med. nauk.

Clinical importance of accessory blood vessels in the lungs. Khirurgiia
34 no.3:113-114 Mr '58. (MIRA 12:1)

1. Iz khirurgicheskogo otdeleniya vtoroy Kutaisskoy gorodskoy bol'nitsy
(glavnyy vrach Sh. B. Daneliya).
(LUNGS, blood supply
accessory vessels (Rus))

EBTANELI, A.M., kand.med.nauk (Kutaisi)

Mondor's disease. Khirurgia 34 no.8:128 Ag '58 (MIRA 11:9)
(VEINS---DISEASES)

BETANELI, A. M., Dr. Medic. Sci. (diss) "On the Problems of Reversal of Duodenum as One Method for Reconstruction of Gastric Tract After Resection of Stomach," Tbilisk, 1961, 31 pp (Tbilisi State Medic. Inst.) 150 copies (KL Supp 12-61, 281).

BETANELI, A.M.

Reversal of the duodenum as a method for reconstructing the
digestive tract following gastrectomy. Soob.AN Gruz.SSR 26
no.2:227-232 '61. (MIRA 14'4)

1. Kutaiskaya gorodskaya bol'nitsa. Predstavleno akademikom
K.D.Eristavi.

(DUODENUM—SURGERY)

BETANELI, A.M., kand. med. nauk; BESHKENADZE, G.Ye.; YASHVILI, A.A.

Removal of the transverse colon in a patient following stomach
resection performed by the Hofmeister-Finsterer method.

Khirurgiia 38 no.12:108-109 D '62. (MIRA 17:6)

1. Iz khirurgicheskogo otdeleniya Kutaysskoy gorodskoy bol'nitsy
No.2 (glavnyy vrach A.S. Dzotsenidze).

GOTSIRIDZE, A.M., prof., red.; BETANELI, A.M., doktor med. nauk,
red.; KHECHINASHVILI, N.N., kand. med. nauk, dots., red.;
NADIRASHVILI, S.A., kand. med. nauk, dots., red.;
NIKOLASHVILI, D.A., kand. biol. nauk, dots., red.;
AKHVLEDIANI, O.M., kand. biol. nauk, dots., red. (Batumi);
PICHKHADZE, R.I., st. prepodavatel', red.; CHONAKHIDZE, D.D.,
red.; KIPIANI, E.Ya., red.

[Theses and abstracts of the reports presented at the Third
Expanded Scientific Conference on Problems of Physiology De-
dicated to the 110th Anniversary of N.E.Vvedenskii's Birth]
Tezisy i referaty dokladov. Rasshirennoi nauchnoi konferentsii
po problemam fiziologii, posviashchennaya 110-letiyu so dnia
rozhdeniia N.E.Vvedenskogo. Kutaisi, Gos.kom-t vysshego i
srednego spetsial'nogo obrazovaniia Soveta Ministrov Gruz.SSR,
1962. 166 p. (MIRA 17:3)

1. Rasshirennaya nauchnaya konferentsiya po problemam fiziologii,
posvyashchennaya 110-letiyu so dnya rozhdeniya N.Ye.Vvedenskogo,
3d, Kutaisi-Batumi, 1962. (MIRA 17:3)

BETANELI, A.M., doktor med. nauk; KANDELAKI, D., red.

[Duodenal reversion as one of the possible methods for the reconstruction of the alimentary canal following gastric resection] Reversia dvenadtsatiperstnoi kishki kak odin iz vozmozhnykh sposobov rekonstruktsii pishchevaritel'nogo trakta posle rezektsii zheludka. Tbilisi, Gos.izd-vo "Sabchota Sakartvelo," 1963. 210 p. (MIRA 17:5)

BETANELI, A.M., doktor med. nauk; KHAKHIASHVILI, D.A. (Kutaisi)

Intraintestinal introduction of antibiotics in laparotomy;
preliminary report. Klin. med. 41 no.7:83-85 J1'63
(MIRA 16:12)

1. Iz Respublikanskoy kutaisakoy klinicheskoy bol'nitsy Ministerstva zdravookhraneniya Gruzinskoy SSR (glavnyy vrach zasluzhennyy vrach Gruzinskoy SSR A.S. Dzotsenidze).

BETANELI, A.M., doktor med. nauk; KHAKHIASHVILI, D.A.

Introduction of antibiotics into the lumen of the intestine in surgery on acute abdomen. Khirurgiia 39 no.11:72-74 N '63.

(MIRA 17:11)

1. Iz Kuttaisskoy respublikanskoy klinicheskoy bol'nitsy (glavnyy vrach - zasluzhenny vrach Gruzinskoy SSR A.S. Dotsenidze) Ministerstva zdravookhraneniya Gruzinskoy SSR.

18.11.74, A.M., center nat. med. univ. V. I. Lenin, M.D.

Case of sarcoma with localization in the esophagus and stomach.
Khirurgiya 29 no.3:103-104, fig. 10.

(L. N. 18:3)

1. Khirurgicheskie otceleniya kutaizskoy klin cheskoj bol'nitsy
(glavnyy vrach - zasluzhennyy vrach respubliky A.S. Tsetsenidze).

BETANISHVILI, A.A., khir. no. 94; 1965, 1.1.

Suture technique in perforating ulcers of the stomach and duodenum.
Vest. khir. 94 no.2:105-106 F '65. (MIRA 18:5)

1. Iz Kutaiskoy respublikanskoy klinicheskoy bol'nitsy (glavnyy vrach - zasluzhennyy vrach Gruzinskoy SSR A.S. Dzotseniya) Ministerstva zdoravookhraneniya Gruzinskoy SSR.

BETANELI, I.D., kandidat tekhnicheskikh nauk; MONTSELIDZE, M.A., inzhener;
~~ROMANIONI, Zh.I.~~, inzhener; CHOGOBADE, G.I., inzhener; MGEBRISHVILI, I.H.,
inzhener; ~~NESADZE~~, M.I., inzhener.

Use of belt conveyers for transporting concrete mixtures. Gidr.stroi. 22
no.8:1-5 Ag '53. (MLRA 6:8)

(Concrete--Transportation)

BETANELI, I. D.

~~BETANELI~~, I.D., kandidat tekhnicheskikh nauk; KOMPANIONI, Zh.I.,
inzhener; ~~MOHRISHVILI~~, I.M., inzhener; MONTSELIDZE, M.A., in-
zhener; ~~NEMSADE~~, M.I., inzhener; CHOGOVADE, G.I., inzhener.

Standard prefabricated concrete plant with two S-158 concrete
mixer. Elek. sta. 25 no.6:48-49 Je '54. (MLRA 7:7)
(Concrete) (Mixing machinery)

BETANELI, I.D.; PASHALISHVILI, T.N.

Using protective reinforced concrete shells in building hydraulic
structures. Trudy nauch.korr.Inst.stroi.dela AN Gruz.SSR no.1:
41-52 '56. (MIRA 13:5)
(Hydraulic structures) (Elastic plates and shells)

15-11-1956
BETANELI, I.D.

Selecting cranes used for supplying concrete mix in construction of hydroelectric power stations. Trudy GPI no.6:97-100 '56.

(MIRA 11:2)

1.Kafedra stroitel'nogo proizvodstva Gruzinskogo politekhnicheskogo instituta im. S.M. Kirova, Tbilisi.

(Concrete construction)

(Cranes, derricks, etc.)

IVANOV, K.I.; VESKOV, M.I.; KHOMYLOV, G.S.; MEL'NIKOV, S.S.; BETANELI, K.P.

Technological layouts for mining coal without men and without
timbering. Gor. i ékon. vop. razrab. ugol'. i rud. mest. no.1:
49-66 '62. (MIRA 16:7)

(Coal mines and mining) (Automation)

LOKHANOV, B.N.; KOVALENKO, V.A.; ~~BETANELI~~, K.P.; VESKOV, M.I.; DRANNIKOV, S.A.; IVANOV, K.I.; BEREZNYAK, M.N.; VASIL'YEV, Ye.I.; TSETSUL'NIKOV, V.R.

Trial operation of cutter loaders in mining with the room-and-pillar method. Ugol' 37 no.8:33-35 Ag '62. (MIRA 15:9)

1. Krasnogorskiy razrez (for Lokhanov, Kovalenko). 2. Institut gornogo dela im. A.A.Skochinskogo (for Betansli, Veskov, Drannikov, Ivanov). 3. Kemerovskiyy gornyy institut (for Bereznyak, Vasil'yev, Tsetsul'nikov).

(Coal mining machinery--Testing) (Mining engineering)

IVANOV, K.I., kand.tekhn.nauk; BETANELI, K.P., inzh.

Some results of full-scale testing of the bearing capacity and
the stressed state of coal pillars. Ugol' 38 no.3:21-28 Mr '63.
(MIRA 18:3)

1. Institut gornogo dela im. A.A.Skochinskogo.

IVANOV, K.I., kand. tekhn. nauk; BETANELI, K.P., inzh.

Using the seismic method under natural conditions to study the
stress state of coal pillars. Nauch. soob. IGD 20:29-41 '63.
(MIRA 16:10)
(Coal—Seismic properties) (Strains and stresses)

BETANELI, K. P., gornyy inzh.

"Highly productive means of mining coal" by A. P. Sudoplatov
and K. I. Ivanov. Reviewed by K. P. Betanali. Ugol' 38 no.4:
62-63 Ap '63. (MIRA 16:4)

(Coal mines and mining) (Sudoplatov, A. P.)
(Ivanov, K. I.)

IVANOV, K.I., kand. tekhn. nauk; BETANELI, K.P., inzh.

Studying the deformations, bearing capacity, and stressed state
of wide coal blocks. Ugol'39 no.6:20-25 Je'64 (MIRA 17:7)

1. Institut gornogo dela imeni A.A. Skochinskogo.

ALESHIN, P.A., kand.tekhn.nauk., dotsent; GRIGOR'YEV, V.S.; BOTANELI, I.F.

"Standardization of the weaving process" by P.V. Vlasov, F.M.
Rozanov. Reviewed by P.A. Aleshin, V.S. Grigor'ev, I.F. Botanelli.
Tekst.prom. 21 no.11:88-90 N 161. (MIRA 14:11)

1. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promysh-
lenosti (VZITLP) (for Aleshin).

(Weaving)

(Looms)

(Vlasov, P.V.) (Rozanov, F.M.)

BETANOV, I.

107-57-5-18/63

AUTHOR: Betanov, I.

TITLE: Uyedineniye Bay (Bukhta uyedineniya)

PERIODICAL: Radio, 1957, Nr 5, p 13 (USSR)

ABSTRACT: During the Geophysical Year our radio operators will be busy with collecting and transmitting of scientific information to the weather bureaus of Moscow, Leningrad, and other points. Regular radio sounding of the upper atmospheric strata will be conducted. A medium- and short-wave 100-w transmitter-receiver station with lesser power-supply requirements is desirable.

AVAILABLE: Library of Congress

Card 1/1

BETANOVA, M.G.

Preliminary data on studying the balance of underground waters in
the Dzerzhinsk region. Trudy Lab.gidrogeol.probl. 47:50-57 '62.
(MIRA 15:6)

(Dzerzhinsk region (Gorkiy Province)—Water, Underground)

BETAPELLE, A.

Work methods in the Mexica mine. II. p. 1416

TEHNIKA, Vol 10, No. 10, 1955
Beograd

SO: EEAL, Vol 5, No 7, July 1956

BETARCHUKOV, R. A., BARBEL', I. E., GRIGOR'EVA, V. I., DYMSHTZ, L. A.

The distinguished Russian scientist Vasilii Vasil'evich Chirkovskii.
Vest. oft. 29:3, May-June 50. p. 5-8

CLML 19, 5, Nov., 1950

BETEKHIN, A. G.

DECEASED

1962/7

c. 1962

GEOLOGY

see ILC

BETEKHTIN, A.G.[deceased]; GOLIKOV, A.S.; DYBKOV, V.F.; IVANOV,
G.A.; KARYANIN, A.Ye.; KIRYUKOV, V.V.; KUPROV, I.G.;
MAGAK'YAN, I.G.; STROMA, P.A.; TATARINOV, P.M.;
CHEKHOVICH, Ye.D.; SMIRNOV, V.I., retsenzent

[Course in mineral deposits] Kurs mestorozhdenii poleznykh
iskopaemykh. Izd.3., perer. i dop. Moskva, Nedra, 1964.
589 p. (MIRA 18:3)

1. BETEKHTIN, A. S., Docent. PETUNOV, V. D., Min. Engr.
2. SSSR (600)
4. Mikheev, Iu. A.
7. Review of Yu. A. Mikheev and K. L. Faybisovich's book "Calculating the cable network of a mine section."
Ugol' 27 No. 11, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953, Unclassified.

DETERJIN, G. A.

The technological processes of a silk weaving mill. Moskva, Gos. izd. legkoi promyshlennosti, 1941. 155 p.

BETEKHIN, G.A.; ZUBOVA, L.K.; POMANSKIY, B.A.; LYUBINSKAYA, A., redaktor;
NATAPOV, M., tekhnicheskiiy redaktor

[Technology of Russian rug making] Tekhnologiya kovrodeliya RSFSR.
Moskva, Vses. kooperativnoe izd-vo, 1955. 229 p. (MLBA 8:7)
(Rugs)

BETEKHTIN, Georgiy Aleksandrovich; NOVIKOV, Vasilii Platonovich

[Use of removable twine healds in the handloom of
rugs] Primenenie s"emnykh nitianyykh galev remiza v
ruchnom kovrotkachestve. Moskva, Gosmestpromizdat,
1962. 5 p. (MIRA 16:11)
(Rugs and carpets) (Looms)

BETEKHTIN, S. A.

PHASE I BOOK EXPLOITATION

238

Betekhtin, Sergey Aleksandrovich; Vinitzkiy, Andrey Mikhaylovich,
Gorokhov, Mikhail Semnovich; Stanyukovich, Kirill Petrovich;
Fedotov, Ivan Dmitriyevich.

Gazodinamicheskkiye osnovy vnutrenney ballistiki (Gas Dynamic Principles of Interior Ballistics) Moscow, Oborongiz, 1957. 384 p. 4,500 copies printed.

Gen. Ed.: Stanyukovich, Kirill Petrovich, Doctor of Technical Sciences, Professor; Reviewers: Serebryakov, M.Ye., Doctor of Technical Sciences, Professor; Orlov, B.V., Doctor of Technical Sciences, Professor; Tolochkov, A.A., Doctor of Technical Sciences, Professor; Ed.: Malyshev, M.V., Engineer; Ed. in charge: Sokolov, A.I.; Publishing Ed.: Bogomolova, M.F.; Tech. Ed.: Zudakin, I.M.

Card 1/10

238

Gas Dynamic Principles of Interior Ballistics (Cont.)

PURPOSE: This book was approved by the Ministry of Higher Education of the USSR as a manual for higher technical institutes. It can also serve as a textbook for university students of mechanics and mathematics, and for students of higher military institutes.

COVERAGE: This work contributes to the theory of internal ballistics by including chapters on wave processes occurring during a discharge. Principles of gas dynamics of transient processes are presented as a new element in the study of internal ballistics. The analytical solution of the Lagrange ballistic problem and the motion of a missile and of the gas-powder mixture in the case of true burning are discussed. These problems are also treated numerically. Simple and accurate solutions of problems in classical internal ballistics for relatively large projectiles are given by means of the generalized Drozdov method. One of the coauthors of this work, Betekhtin S.A., died in 1953, in the line of duty.

Card 2/10

238

Gas Dynamic Principles of Interior Ballistics (Cont.)

Chapter VI was written by S.A. Betekhtin, Chapter III and IV by S.M. Vinit'skiy, Chapter II by S.M. Vinit'skiy and K.P. Stanyukovich; Chapter VIII was written by S.M. Gorokhov, Chapters I and V and the introduction by K.P. Stanyukovich and Chapter VII by I.D. Fedotov. There are 82 figures, 59 tables, and several references in footnotes.

TABLE OF CONTENTS:

Preface 3

Introduction 4

Card 3/10

| | |
|---|-----|
| Gas Dynamic Principles of Interior Ballistics (Cont.) | 238 |
| Ch. I. Certain Data From Thermodynamics and Gas Dynamics | 7 |
| 1. Basic thermodynamic laws for gases from powders | 7 |
| 2. Basic equations for the linear flow of gas and their solutions | 18 |
| 3. Unidirectional rarefaction wave | 30 |
| 4. Reflection of rarefaction waves | 35 |
| 5. Unidirectional pressure waves | 44 |
| 6. Basic characteristics of the nonsteady flow of gases | 50 |
| 7. Propulsion of objects by combustion products | 54 |
| Ch.II. Analytical Solution of the Lagrange Problem | 65 |

Card 4/10

238

Gas Dynamic Principles of Interior Ballistics (Cont.)

- 8. Formulation of the problem, basic tolerances,
and the wave system 65
- 9. Construction of differential equations 76

Ch. III. Problem of the Motion of a Piston and a Gas Chamber
Inside a Tube Closed at One End, Acted Upon by a Gas
Flow From the Piston Chamber Into the Closed Tube
Space, Without Taking Wave Processes Into Account 105

- 11. Formulation of the problem, assumptions, and con-
struction of differential equations of motion 105

Ch. IV. Problem of the Motion of a Piston and a Gas Chamber
Inside a Tube Closed at One End, Acted Upon by a
Gas Flow From the Piston Chamber Into the Open
Tube Space Behind the Piston, Taking Into Account
the Effect of the First Wave Reflected From the Tube
Bottom 112

Card 5/10

238

Gas Dynamic Principles of Interior Ballistics (Cont.)

| | | |
|--------|---|-----|
| | 12. Formulation of the problem and its solution | 112 |
| Ch. V. | Analytical Solution for the Fundamental Problem
in Internal Ballistics | 122 |
| | 13. Fundamental equations of internal ballistics
in the Lagrange form | 122 |
| | 14. Characteristics of the fundamental equations
of internal ballistics | 130 |
| | 15. New method for solving the problem | 134 |
| | General considerations | 134 |
| | First rarefaction wave | 134 |
| | Reflected rarefaction wave | 143 |
| | 16. Solution of the internal-ballistics prob-
lem in the specific case of $x = \phi(a; t)$ | 147 |

Card 6/10

| | |
|--|-----|
| Gas Dynamic Principles of Interior Ballistics (Cont.) | 238 |
| Ch. VI. Numerical Methods of Solution | 164 |
| 17. Method of characteristics | 164 |
| 18. The Lagrange problem | 182 |
| 19. Solution of the Lagrange problem taking co-volume into consideration | 201 |
| 20. Nature of the motion under conditions of the Lagrange problem | 208 |
| 21. Solution of the Lagrange problem for a chamber of variable cross section, and solution of the Lagrange problem in the presence of a gas vent in the wall of the cylinder | 218 |
| 22. Solution of the Lagrange problem taking the heat-transfer effect into consideration | 231 |
| 23. Solution of the fundamental problem of internal ballistics | 238 |

Card 7/10

| | |
|--|-----|
| Gas Dynamic Principles of Interior Ballistics (Cont.) | 238 |
| 24. Solution of the fundamental problem of internal ballistics taking into consideration the heat-transfer effect | 257 |
| 25. Certain problems in the theory of unidimensional shock waves | 260 |
| 26. Motion of gases after the discharge of the projectile | 275 |
| 27. Characteristics of the motion of gas from powders in a pressure bomb, with initial nonuniform distribution of the charge | 288 |
| Ch. VII . Solution of the Lagrange Problem When There Is a Gap Between Piston and Cylinder | 302 |
| 28. Flow of gas through concentric and eccentric apertures | 302 |
| 29. Flow of gas through a sealing labyrinth | 310 |
| Card 8/10 | |

| | |
|--|-----|
| Gas Dynamic Principles of Interior Ballistics (Cont.) | 238 |
| 30. Solution of the Lagrange problem when there
is a gas leak through free space | 314 |
| 31. Escape of gas through a moving aperture | 316 |
| 32. Effect of size of the free space on the
ignition of the propelling charge | 319 |
| 33. Unsimultaneous initial gas leakage through
tube side holes having local resistance | 324 |
| 34. Effects of unsimultaneous leakage | 332 |
| Ch. VIII. Generalized Method of N.F. Drozdov for the
Solution of Internal-Ballistics Problems | 338 |
| Introduction | 338 |
| Assumptions | 340 |
| System of equations | 341 |

Card 9/10

| | |
|---|-----|
| Gas Dynamic Principles of Interior Ballistics (Cont.) | 238 |
| Calculation of the effect of the burn-out of decomposition products | 345 |
| Period of gas expansion | 348 |
| Numerical examples | 348 |
| Method for the solution of the inverse problem | 351 |
| Particular cases | 353 |
| Numerical example | 354 |
| Supplement. Tables for Ch. VIII. | 357 |

AVAILABLE: Library of Congress

BK/l sb
27 May 1958

Card 10/10

BETEKHTIN, V.I.; ZHURKOV, S.N.; SAVITSKIY, A.V.

Effect of additions on the temperature-time relation of metal strength.
Fiz. met. i metalloved. 10 no.3:453-461 S '60. (MIRA 13:10)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Alloys--Testing) (Metals, Effect of temperature on)

S/18/62/004/00/02/001
B 08/B'04

AUTHORS: Betekhtin, V. I., and Slutsker, A. I.

TITLE: Study of the disorientations of the mosaic blocks through measurement of small-angle x-ray scattering

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 151-159

TEXT: X-ray scattering from polycrystalline metals through small angles is chiefly due to double reflection under Wulff-Bragg angles from slightly disoriented crystal domains (mosaic blocks) which form the grains. The angular distribution of the scattered light intensity which can be determined by experiments is directly proportional to the disorientation of the mosaic blocks. Method and arrangement for the intensity measurements have been described in previous work (A. I. Slutsker, Ye. A. Yegorov, PTE no. 5, 89, 1959). By means of a broad and sharply bounded x-ray beam it was possible to study the scattering from altogether 10^4 to 10^5 grains. A Gaussian distribution was assumed for the orientations of the mosaic blocks about the predominant direction of orientation within one grain: $P(\epsilon) = C \exp(-k^2 \epsilon^2)$. ϵ is the angle between the normals of the crystal faces of

Card 1/3

S/181/62/004/001/021/052
B108/B104

Study of the disorientations...

two mosaic blocks from which a beam is reflected twice. 99.96% pure aluminum was examined in the experiments. ϵ and k were determined. It was found that with increasing annealing temperature of the specimens their structure improves and the disorientation of the mosaic blocks decreases. The scattered intensity increases in the case of deformation. Moreover, the grain size increases with higher annealing temperature and with the reduction of disorientation. The described small-angle x-ray scattering method is well applicable in studies of the fine structure of crystal bodies. S. N. Zhurkov is thanked for guidance. There are 1 figure, table, and 19 references. 7 Soviet and 12 non-Soviet. The four most recent references to English-language publications read as follows: W. T. Ogier et al. J. Appl. Phys. 30, no. 5, 408, 1959; M. B. Webb et al. W. W. Beeman. Acta Met. 7, no. 5, 205, 1959; B. E. Warren. Austral. J. of Phys. 13, no. 2A, 376, 1960; R. L. Wild et al. J. Appl. Phys. 32, no. 5, 610, 1961.

ASSOCIATION: Fiziko-tekhnicheskii institut im. A. F. Ioffe AN SSSR
Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS
USSR Leningrad)

Card 2/3

Study of the disorientations...

S/181/62/004/001/021/052
B108/B104

SUBMITTED: July 14, 1961

Card 3/3

37704

S/126/62/013/004/018/022
E091/E435

12.1210 (2408)

AUTHORS: Betekhtin, V.I., Slutsker, A.I.

TITLE: Study of the disorientation of mosaic blocks in
aluminium

PERIODICAL: Fizika metallov, i metallovedeniye, v.13, no.4, 1962,
615-621

TEXT: By means of measuring the low-angle scatter of X-rays the disorientation of blocks in aluminium was studied: in tension under conditions of creep until fracture at various temperatures and stresses; during rolling; after introducing impurities. The specimens, shaped like double blades, 22 mm long, 3 mm wide and 0.07 mm thick, were annealed and tested for creep at various constant temperatures and stresses. The thickness was chosen so as to obtain the maximum intensity of scatter, by equalling μ^{-1} (μ - absorption coefficient). The dependence of the intensity of scatter on the angle of the scattered X-rays was measured on annealed and on fractured specimens. It was found that the degree of disorientation of blocks in annealed aluminium is determined by: the degree of rolling prior to annealing,
Card 1/3